

Buying a bike for your child

[NB This document includes reference to a number of cycle-specific words and phrases that some readers may be unfamiliar with. To aid understanding of this technical language there is a 'Cycling glossary' under the 'Further information' section.]

Bicycle prices don't simply scale down with size. Raw material savings are modest. A child's bike uses shorter lengths of tubing, but smaller components are not intrinsically cheaper. Also, unlike clothes, children's bikes aren't VAT-free. So how come most children's bikes are much cheaper? Because lots of them are 'Bicycle-Shaped Objects', offering the appearance of a mountain bike but none of its function. This stylish-looking oversize frame could be heavy mild steel instead of lightweight aluminium, and that suspension fork could move more fore and aft than it does up and down.

It's the same story as with cheap adult bikes only worse. Children's bikes more than any other are built down to a price – however, because they are made cheaply and sold cheaply they will be far more likely to break down and therefore be abandoned. A good bike will still be in use several Christmases later and can be handed down to a brother or sister. So its yearly cost can be a lot less, even if it's two or three times the price to begin with.

Children will tolerate, even enjoy, almost any bike. If you get them a good one, however, they'll keep using it after the initial thrill of having a new bike has faded. Good bikes get used, day in, day out, because they're a pleasure to ride. Bad bikes, on the other hand, slowly decay in sheds.

Decent children's bicycles aren't hugely expensive. You can get a good bike for a five-year-old for around £100, and a really nice one for a 10-year-old for £200-£250. That's no more than an Xbox 360, and a good deal less when you factor in the price of games. And which would you rather your child played with?

There are perfectly acceptable bikes available for less than this, of course, but with new bikes it means sorting the wheat from a much larger volume of chaff. Bargains are rare – unless you buy secondhand.

The local newspaper adverts or eBay can yield good deals, if you know what you're looking for. If not, minimise the risk of buying a turkey by purchasing from keen cyclists. Cycling enthusiasts will probably have bought something decent in the first place and maintained it. The 'for sale' board on the CTC Forum (<http://forum.ctc.org.uk>) is a great first stop. Other UK sites (such as BikeRadar) and cycling magazines may also be useful.

Weighty issues

Size and weight need scaling down to suit a child. That sounds obvious, but cheap tiny bikes for seven-year-olds can be heavier than a good quality full-sized adult one. Bike weight is always a bigger proportion of a child's bodyweight than an adult's, often as much as a half or a third instead of around a seventh. That only makes it even more important to reduce it. Weight impacts on the fun and manoeuvrability of a child's bike. Imagine strapping a couple of breeze blocks to your own bike. That's the kind of extra weight we're talking about, in relative terms, on some children's bikes.

The trickle-down of aluminium tubing into the lower price brackets means that many children's bikes are finally getting lighter. While aluminium isn't inherently better than steel, the way children's bikes

are built nowadays – cheaply, sturdily, with over-sized and odd-shaped tubes – it's a lot lighter. To check a bike's weight before you buy, you don't need to take a set of scales to the shop. Just pick the bike up. Then, with careful supervision, see how easily your child can lift it.

A question of scale

Standard cycle components are made to fit the average sized man. Components for children's bicycles clearly need shrinking down to suit a smaller rider. Frames and wheels always are, to some extent. With other components it's hit and miss. In particular, cranks are almost always too long. Over-long cranks are ungainly and inefficient. They force the bottom bracket to be higher off the ground to avoid pedal strikes, and this makes it harder to get a foot down from the saddle. As a rule of thumb children need cranks that are roughly one-tenth their overall height, just like adults. So a child 1.2 metres tall needs 120mm cranks.

You can get a more accurate figure using 20 percent of leg length instead. To measure that, don't use trouser size. Instead, subtract height when sitting against a wall from height standing against a wall. That's your leg length. A fifth of this figure is the required crank length. The cranks don't need to match to the exact millimetre but the measurement is a good guide. If in doubt, it's better to err on the short side than long. The problem is that most manufacturers fit children's bikes with, at best, whatever cranks ought to be on the next bike size up.

The handlebar should be narrower than the 60cm riser handlebar that you might use on a mountain bike, but this isn't so critical. A wide handlebar is good for control and, in a fairly upright riding position, isn't usually uncomfortable. If it is, you can easily cut the bar shorter with a hacksaw. Brake levers must be within easy reach and the brakes must be easily operable: children have much weaker grip strength than adults. Check that you can reach and work each brake with one little finger. Hydraulic disc brakes are best, but cost too much to be fitted to anything but high-end children's mountain bikes. Smoothly functioning V-brakes are okay. Grip shift-style twist shifters require less thumb strength than Rapidfire levers, and younger children in particular seem to find them more intuitive.

One measurement that doesn't scale well to children's bikes is reach – the distance between the saddle and the handlebars. Most children are happier in a riding position that's both shorter and more upright than you would adopt, so they need the bars higher and closer. BMX handlebars are excellent on bikes with 20-inch or smaller wheels for that reason.

The growing cyclist

Optimum bike fit comes by progressing in stages rather than fitting your child onto the biggest bike he or she can pedal. For safety's sake, your child must be able to get a foot down easily when sitting on the saddle – both feet for learners – and able to stand with both feet flat on the floor while straddling the top tube in front of the saddle. Otherwise there's an accident waiting to happen.

Children's bikes can be divided by wheel diameter into five sizes: under 16 inches, 16 inches, 20 inches, 24 inches and 26 inches. These sizes correspond to approximate age ranges (see below), but you might find your child is ready for (or outgrows) a given size a year or two earlier. Also, bear in mind that the use of different frame designs mean that one manufacturer's 24in-wheel bike might be slightly bigger or smaller than another's.

You don't have to buy your child a bike at every wheel size, although that would be ideal. Just be aware that a bike with significantly bigger wheels than those your child is used to will make bike control harder. While a larger wheel will roll over bumps better, it will also be heavier and the steering will be less responsive. The reach to the bars will likely be greater and the bottom bracket will be higher.

Conversely, there will come a time when your son or daughter is just too big for that old bike. Two or three years per bike is fairly typical. You can recoup some of your costs by selling on a used bike, or you can extend its use-life by handing it down to a sibling. Avoid the temptation to buy something cheap and nasty: a bike that barely gets used isn't a bargain, however inexpensive it is.

One bike for everything

While keen adult cyclists may have several bikes, most children will, at any given time, have just one. The ride to school bike, the off-road bike, the bike for cycling in the lanes – they're one and the same. No bike is best at everything so there will be compromises to make somewhere. Those may include balancing what your child wants with what your child actually needs.

This isn't an issue with smaller bikes. A decent pavement bike will do everything its five-year-old owner will ask of it. As your child starts to use the bike for longer and different journeys – an issue for bikes with 24in and larger wheels, typically – the need for a bike that's versatile enough to tackle all those trips becomes greater.

A hybrid would be ideal, as the name suggests, but there are few – if any – made for children. The next best option is some kind of mountain bike, which your child will be happier with in any case because off-road bikes are more fashionable. Even those that won't go off-road can be good general-purpose bikes. The bike needs to be versatile. It's a given that it will go off-road, assuming it's not a 'Bicycle-Shaped Object'. But are there eyelets to fit mudguards for weekday street use? Could you fit a rear carrier rack for a school bag, or for that cycling holiday?

This need for versatility will dictate some kind of hardtail – either with a suspension fork or a rigid fork. It's worth changing the tyres, or at least getting an extra pair. Knobbly off-road tyres might look cool but they are slow and hard work on tarmac.

You could fit semi-slicks – tyres with some tread but not the tractor tyre knobbls of true off-road tyres. The local bike shop may even be happy to swap them over at point of purchase. Semi-slicks will roll better on road and will still be okay off-road when it's dry. A more effective option, but one that's a bit more hassle, is to fit slick tyres to the bike for everyday use and then switch them for the off-road tyres the night before singletrack excursions.

Ages 3-5: sub 16-inch wheels

Low weight and correct proportions are the priorities for a starter bike, which will have 12 or 14in wheels. Gimmicks – for example, being overbuilt so as to look like a motorbike – are best avoided. Look for an upright riding position, courtesy of a BMX-style handlebar, a low stand-over height, and short cranks (90-100mm). Smooth pneumatic tyres roll better than knobbly ones or tyres that have been filled with foam. The wheels, bottom bracket and headset should all use ball bearings instead of stiff or sloppy plain bearings, where plastic turns on plastic.

Gearing will be single-speed, which is fine. The brakes should be easy to operate; do the little finger brake check. V-brakes are effective stoppers, but even better for a starter bike's rear wheel is a back-

pedal brake. A rear brake takes more effort than a front brake due to cable friction and uses the (usually) weaker hand. Using the legs instead overcomes this, and pedalling back to stop is intuitive for a new cyclist. Stabilisers are common on bikes of this size; at some point (ideally sooner rather than later), you'll want to remove these.

Ages 4-6: 16-inch wheels

Taller or older children can perhaps go straight to a 16in-wheel bike from a learner bike. Like 12- and 14in-wheel bikes, all 16in-wheel bikes come with a single-speed gear. The chain stays are too short for derailleur gears to function properly, and they would only confuse a young child in any case. As children of this age won't be riding far, a single gear is fine.

Requirements are much the same as the smaller bikes: low stand-over; ball bearings; pneumatic tyres; decent brakes. A low-ish bottom bracket will help your child get a foot down when sitting on the saddle – which, as he or she can now ride properly, you'll be gradually raising. Cranks should be 100-120mm but 125mm isn't too bad.

You sometimes see cheap bikes in this size range with nasty suspension or monolithic steel frames. Avoid. Features like this add unnecessary weight and very little else. As with adult bikes, the less you're spending the simpler the bike should be.

Ages 6-9: 20-inch wheels

Gears are the obvious extra for 20in-wheel bikes. While single-speeds are still fine, a 3-speed hub gear is even better: it's easy to understand, easy to use, and hard to break. Hub gears are more expensive for manufacturers to fit, however, so 5 or 6-speed derailleurs are what you'll commonly find.

If the bike does have a derailleur, get a derailleur guard for those occasions when the bike is dropped on its side. A kickstand is useful, as young children aren't good at propping their bikes up. Look for easy-to-use shifters. Cranks are likely to be too long. You want 110-130mm; 140mm is too big, although not ridiculously so.

Some 20in-wheel bikes come with a suspension fork, or even full suspension. There are two disadvantages with these: extra weight; and less money to go round elsewhere. If you're paying a large amount of money for the bike, then you may find that the suspension fork provided is adequate. However, rigid bikes will still give a better return for your money.

Ages 8-12: 24-inch wheels

As bikes get bigger and start to feature the kind of components you'd expect on an adult bike, so price rises, too. Good quality 24-inch wheel bikes start at about £150. For that you can expect a light(ish) weight aluminium frame, aluminium alloy wheels, and brand name V-brakes.

Most mini-mountain bikes from the bigger name brands will have an 18 or 21-speed drive train and a cheap suspension fork – that may even work adequately. A better option would be a lighter rigid bike with a wide-range 8-speed cassette and a single chainring: it's lighter, simpler, easier to use, and more durable. Most children under 10 only end up confused by a front derailleur and the bike invariably ends up with the chain on the smallest chainring and smallest sprocket, where it runs noisily and inefficiently.

Tyres will have off-road tread on most bikes. Children like the look of these but a set of semi-slicks would be a better compromise (see above). The cranks are, again, likely to be too long: ideally you want 140mm, but could compromise at 150mm.

A few manufacturers offer road (racing) bikes in this size. As it's something of a niche market for English-speaking countries, the quality tends to be pretty good and the price high. Expect the components that you would expect, pound for pound, with an entry-level road bike: Shimano Sora gearing, aluminium frame, and so on. Also note that the shorter reach that children prefer requires a short stem and short reach, shallow drops.

Ages 12 and up: 26-inch wheels

Children aged 12 or 13 are ready for a small-framed adult mountain bike with 26in wheels. Many manufacturers make frames down to 14 or 15in, and some do 12 or 13in frames. Trials fans and serious off-road riders may want the smallest frame for the extra clearance over the top tube, but most teenagers can go straight to 14 or 15in.

Unless it's specifically aimed at children, resist the temptation to put your 9- or 10-year-old on a 26in-wheel bike just because they happen to be able to reach the pedals. He or she will be better off on a 24in-wheel bike, which will probably be lighter and will be easier to control than an adult bike.

The smaller bike should also have more kid-friendly components, such as cranks, whereas even a bike aimed at small adults will typically have average-sized adult cranks (170 or 175mm). Younger teens would be better off on 150 or 160mm.

An adult bike means adult prices: expect to pay from £200 for a sturdily built aluminium hardtail frame with a basic suspension fork. The closer you spend to £300, the more likely it is the bike will have an adjustable suspension fork (for pre-load, at least), an 8-speed rear wheel (hence, 24 gears) and frame mounts for disc brakes. Some even come with cable disc brakes. Don't forget, though, that less is usually more when it comes to quality. Avoid full suspension entirely unless you're spending a serious amount of money.

Teenagers are acutely aware of peer pressure and will want a bike that's considered cool. Currently, this seems to mean a mountain bike with a simple paint scheme – such as black, white, matt grey, silver, maybe red – and a chunky, dirt jump-style frame. Any cheaper than £200 and you're looking at street/towpath bikes. That's fine, too, so long as you accept that below £200 you're best off looking for a bike with no suspension, no disc brakes, fewer gears, and no gimmicks. That is, 'a bike' rather than 'an off-road bike'.

Golden rules for buying a kid's bike

- Don't buy a bike for your child to grow into. For safety's sake, it must fit.
- Pick it up. Light weight is vital. Look for aluminium tubing or thin (i.e. cricket stump diameter) steel tubes.
- Be suspicious of suspension – especially at the rear of the bike. Cheap suspension is dead weight that serves no practical purpose. To help persuade your children that suspension is not a 'must have', get them to trial bikes with and without it. They'll soon realise that those without are much lighter, easier, and thus more enjoyable to ride.
- More gears are not better. Front derailleurs are superfluous until secondary school.

- Consider semi-slick tyres. Knobbles look cool but are hard work.
- Riding position should be fairly upright, with handlebars higher than the seat.
- Try the brakes using only your little finger. That's equivalent to a younger child's grip strength.
- If the cranks are much too long, see if they can be exchanged for the next size down at point of sale.
- Less is more. You never get something for nothing. Corners will be cut.